G. R. B. IX-5]

Previous references.

Genl 11-20
22-20

File No

192

Serial Nos.

( )

Later references.

Genl 64-20(91-10)
Genl 42-21(1-5)
Genl 38

GENERAL AND REVENUE SECRETARIAT

Serial Nos.

Part B for

SUBJECT.

Appointment

G. R. S. III—1] 191 c. 21

GENERAL AND REVENUE SECRETARIAT.

(Misc)

NOTES.

File No.

File Heading.

Application from Lt. V. N. Krishna Iyer for admission in the Civil

Service. (See Public Service Commission Misc)

From

No.	Dated	Received

Diary No.	Enclos.	Spare Copies.	Serial No.

Brief Abstract of Letter.

NOTES AND ORDERS.

Notes—First Sheet.

The Mysore-Hassan Minerals Mining Co., KABBUR.

V. N. KRISHNAIER, PROPRIETOR.

DIARY NO. 2148

Geol File No. of 191

No.

Has any recommendation been made by the Director regarding issue to him of the revised Queries —

Where are papers re Monopoly of Vardamanaka — & what is to be done now — Has granted & there any reply required —

Chas Perry will Complete — 4/9.6

Ashley —

3 Has any reply been received from Director — Pse please enquire.

4/9/6

Submitted

4 No reference has been received from the Director re asbestos on behalf of the Mysore-Hassan Minerals Mining Co.

5 papers relating to the monopoly granted to Mr. M. L. Vardhamanaiya are submitted herewith. As no work done by him has not been receiving

NOTE—Contn. sheet.

IV

MINOR Depts:

22 JUN 1920

546 2

G. R. S. III-2]

General and Revenue Secretariat. Geol File No. 11 of 1920-21

Serial No.

calling for the same is submitted. Orders

Ans 23-6-20. hly 24 — to Issue DCS 24/6/20.

To The Director of Geology

No G 28110 dt 24-6-20.

Requests that a report re the work done by Mr Vardhamanaiah in respect of asbestos may be submitted & enquires whether any application re asbestos has been received on behalf of the Mysore Hassan Minerals Mining Co & if so when his recommendation thereon may be expected.

2 From the same office

No 583 8-7-20.

Submits a report re the work done by Mr. Vardhamanaiya in respect of asbestos & states that he will submit the application received from the Mysore Hassan Minerals Mining Co after inspecting the work done by Mr. Vardhamanaiya as well as that of the Mysore Minerals mining Co.

7 Submitted with reference to paragraphs 1–3 above.

Ans 12-7-20. hly 8 (1st Member) DCS 14/7/20

272 / 12.7.20

9 Minute the report should be shelved

10 The Samples praised (although the result was not up to expectation) — He should that they are as good as the Canadian variety —

11 Draft please DCS 13/7/20

NOTE—Contn. sheet.

Mr. A/Gs

G. R. S. III-2]

General and Revenue Secretariat. Geol File No64 of 1920-21

Serial No.	
	12 Submitted with two drafts. AHS 14-7-20 bly 13 Issue acs 14/7/20.
3.	To the Director Dept of Geol G. 1089 dt 16.7.20 States with refee: to bl 1 that the matter may be treated as urgent and the report submitted early
4	To Dr Smeeth Dr A D. Sc G. 1090 dt 16.7.20 Forwards some samples of asbestos produced by a certain Mining Syndicate & calls for his opinion about them
Ref A 5	From Dr Smeeth, Director of Mines & Geology No 207. dt 20/21-8-20 returns the samples of asbestos with his opinion thereon 14. Submit with references to First Member. (Sd). C. S. B. 21/8. 15 Submitted The report promised by the Director has not yet been received. A reminder was sent on 18-8-20. AHS 23-8-20 bly 16 For perusal (1st Member) acs 24/8/20 17 Secy Board see the Director next Monday & Ch what he 24

SECRETARIAT
MINOR Depts.
20 JUL 1920

87
24/8/20

NOTE—Contn. sheet.

2462
546

4

G.R.S. III—3]

Genl III-20

Routine Notes.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

Submitted

18 It is ascertained in the establishment of the First Member of council and in the Dewan's office, that no communication was sent from either of those offices to Dr Russell or to Mr. Jayaram in the matter

19 Dr Russell Director of Mines & Geology has furnished his opinion about the samples of asbestos presented by the Mysore Hassan Minerals Mining Co

W A report is due from Mr. Jayaram, Director, Dept of Geology, re the application of the above named company & re the work done by Mr. M L Vardhamanaiya in connection with asbestos industry. Mr. Jayaram has promised to submit his report after inspecting the work done by both the parties.

21 Orders are solicited as to whether Dr Russell or Mr Jayaram may be requested to meet the Dewan on Monday next in the Public Office.

106
26/8/20

AHS 26-8-20. (1st Member)

Dr Jayaram with his Report when received

24 Monday

Please note & return.

26/8

N.B.—Should routine notes be written on small slips, the notes must be copied, or slips pasted on this form.

29:6 V
546

5

General and Revenue Secretariat. | Geol File No. 64 of 1920-21

Serial No.	
	25 Submitted with a draft D.O. letter to the Director
	A18 26-8-20. Vly 28 Issue 28/8/20.
6	To B. Jagannam Esq I.C.S. Director of Geol G 4725 dt 28-8-20 Requests him to see the Dewan at 4 P.M. on Sunday the 30th instant with the report promised by him
	Submitted with reference to paragraphs 17, 23 & 24 above— A18 30-8-20 Vly
	27 Sept File that will be req^d for reference when the Director of Geology meets the Dewan at 4 P.M today. Dwan A.
	2nd 30/8 Rec'd Dewan awaited Vly 30/8.
7	From the Director, Dept of Geology No 534 dt 13/18-9-20. Submits the report on the work done by the M. L. Varadhacharya & by Messrs V.V. Krishna Iyer & T. Chinnaswamy Iyer in respect of asbestos & recommends that areas exploring licenses over areas in Districts applied

NOTE—Contn. sheet.

Serial No.

may be granted to Mr. V N Krishna Iyer on the conditions specified

Submitted for orders.

Attd 22-9-20 Ely

DCS 22/9/20

30 (1st member)

184

23/9

3rd The recommendations of the Director may be accepted

3rd/ One copy of the papers at time the rule 3 to be returned who otherwise applicants not be entertained

4

27.9

33 Please draft orders

Ely

28/9

Submitted with a draft.

Attd 2-10-20. Ely

Issue

DCS 4/10/20

9 To The Director Dept of Geol

G. 7796 of 9.10.20

States that an exploring license with Spl. protection may be offered to Mr V. N. Krishna Iyer subject to certain conditions

NOTE—Contn. sheet.

7

G.R.S. 26]

Gol File No. 44-20.
Serial No. 1

Diary No. of letter replied to

No. G 28100

General and Revenue Secretariat
( )
, *the* 191 .

To

The Director, Dept of Geology

Sir,

I am directed to invite your attention to Govt orders no G 5707. no G 27096 no G 5673 Geol 2-18-9 dt 18-9-18 Geol 3-18-19 dt 2-6-19 Geol 24-19-2 dt 4-9-19 regarding the grant of monopoly to Mr. M. L. Vardhai-manaiya in respect of asbestos in the districts of Mysore & Hassan and to request that a report on the work done by him since the monopoly was granted may kindly be submitted to Govt very early.

I have etc

DCS
24/6/20.
For Chief Secretary to Govt.

over.

Date of issue 24/6

Signed by Mc Dey
S
J
U

I am also to enquire whether any application regarding asbestos has been received on behalf of the Mysore-Hassan Minerals Mining Company and, if so, when your recommendation in regard to it may be expected in this office.

SUBJECT.

24/6/20

M. G. D. 12.

No. 53
Encs: 3.

Dated, Bangalore, 7th Juby 20.
8th

From

B. JAYA RAM, Esquire, F.G.S.,
Director, Mysore Geological Department.

DIARY NO. 574

Ch Secy
5 JUL 1920

19 -19
SECTION Geol 20-2
FILE NO

To

C.S. Balasundaram Iyer, Esq., B.A.,
Chief Secretary to the Government of
H.H. the Maharaja of Mysore, Bangalore.

CHIEF SECRETARIAT
MINOR Deptor
9 JUL 1920

Sir,

With reference to your letter No.G.28110/Geol., dated 24th June 1920, I have the honor to forward herewith a copy of a report, dated 14th May 1920, received from Mr. M.L. Vardhamaniah, Sowcar, Dodpet, Mysore, in respect of the work done by him in connection with the development of the asbestos industry since the grant of the monopoly to him in September 1918 over the Districts of Mysore and Hassan.

Copies of reports submitted by Mr.C.E. Suryanarayana Rao, Offg. Inspector of Mines, who inspected the works done on the blocks taken up by Mr. Vardhamaniah since the grant of the monopoly, are also forwarded herewith.

Mr. Vardhamaniah appears to be very enthusiastic and zealous about the development of the asbestos industry in Mysore and it is reported that he has already spent about Rs.15,000/- on prospecting the blocks till now. About 350 tons of asbestos are reported to have been extracted and the machinery for the manufacture of asbestos mill boards is expected to be received and put to work by about the middle of October 1920.

Messrs.

Messrs. V.N. Krishna Iyer and T. Chinnasawmy Iyer, Proprietors of the Mysore-Hassan Minerals Mining Co., who also hold certain asbestos blocks in the State, have recently applied for an exploring license with preferential rights in respect of asbestos over the Districts of Bangalore, Tumkur, Kadur and Chitaldrug. What they ask for is practically a monopoly over these Districts similar to that granted to Mr. Vardhamaniah over the Districts of Mysore and Hassan.

Before submitting their application to Government for orders, I would like to inspect the work done by both the parties, viz,- (1) Mr. Vardhamaniah and (2) Messrs.V.N. Krishna Iyer and T. Chinnasawmy Iyer. I should have undertaken to do this inspection at once but for the uncertain weather. However, it shall be done at the earliest possible opportunity and my recommendations submitted to Government in due course of time.

I have the honor to be,

Sir,

Your most obedient servant,

B. Jaya Rao

Director,

Mysore Geological Department.

cvv

Report on the development of the asbestos industry.

--------oOo--------

In the month of September 1918, the Government of H.H. the Maharaja of Mysore were pleased to sanction a monopoly for prospecting for asbestos in the Districts of Mysore and Hassan. Since the date of sanction, prospecting work in the above two Districts has been vigorously carried on and the following is a brief report on the results so far achieved :--

Prospecting work.-

In the district of Mysore, we have not been able to locate the occurrence of this mineral in workable quantities, though in the Mavinhalli area of the Mysore Taluk a very good specimen of the Chrysotile variety was found. This occurrence seems to be more a freak of Nature and several trial pits excavated during the exploration work showed no signs of the mineral. In view of the fact that this asbestos is of the true Canadian Chrysotile variety, it is necessary to prospect this area more systematically.

Hassan District.-

Prospecting licenses for the following areas have been obtained.

1) Idegowdanahalli,
2) Yennehole Ranganbetta,
3) Bettadsatenhalli.

The work done in these areas has been indicated in the quarterly reports submitted to the Director from time to time and I will, therefore, confine myself to the quality of asbestos obtainable in these areas.

At Idegowdanahalli, the asbestos so far mined is of

the

the Amphibole variety and except for such purposes as Boiler composition is unsuited for being worked up into products used in the Engineering Industries. At Yennehole Ranganbetta and Bettadsatenhalli, the quality is better; the asbestos when treated in crushers break up into short fibres which felt together quite satisfactorily in the manufacture of paper and mill boards. This quality is also found eminently suited for the manufacture of asbestos cement sheets & tiles. Unfortunately however the areas are small and the percentage of recoverable asbestos to the rock mined is in no case more than one. ' An analysis of this material gave the following results :--

	Fibrous.
Moisture.	0. 1
Loss on ignition.	1. 7
Silica.	58. 8
Ferrous oxide.	4. 3
Alumina.	0. 7
Lime.	12. 3
Magnesia.	22. 0
	99. 9

The total quantity of asbestos mined till now, is as follows:-

Idegowdanahalli Block. .. 300 tons amphibole variety

Bettada Satenahalli. .. 50 tons of Tremolite "

A sum of Rs.15,000/- has been spent till now on prospecting work.

Machinery.

For reasons mentioned above we have considered it advisable to get out machinery only for the manufacture of asbestos mill boards with a capacity of about 2 tons a day of 24 hours.

Though

Though orders were placed as early as July 1919, the labour troubles in England have delayed the delivery of the plant and from the latest advices received from the manufacturers, we expect to have the plant in working condition by about the middle of October this year.

"Copy"

B. Rayan Rao
Director,
Mysore Geological Department.

Inspection notes on asbestos blocks.

------oOo------.

Idegundanahalli Block P.L. No.475 and Bettadasatenhalli Block, both of which I inspected, are situated on the southern extremity of the schist belt and on the western branch of it, respectively, (see plate I, Records, Vol.XI). The geological features of the schists including the formation of the mineral asbestos have been fully described in the same volume in pp 82 to 90.

The main pit in the Idegondanhalli block is situated on the western slope of a ridge which lies midway between Idegondanhalli and Honnenhalli villages. It is 121 ft long, 23 ft broad and 15 ft deep, average. An irregular vein of asbestos of varying thickness with a big swelling in the centre has been exposed in it. The fibres of the mineral lie perpendicular to the walls of the vein. A small quantity of asbestos can be obtained from here in long fibrous sticks but the commercial value of it will depend upon the strength of the fibre and its purity. At the pit mouth are about ½ dozen stacks of the mineral, each measuring 18' x 7' x 3'.

The debris and the mineral from the pit was raised on head loads, the coolies employed using the stair cases cut in the sides of the excavation. They are somewhat narrow and requires to be widened if work is to be resumed. The sides of the pit are vertical and slightly under-cut. The pit is unprotected and is a source of danger to cattle frequenting the ridge for grazing purposes. (Rule 11, Mysore Mining Rules.)

No.2 pit is about 1 furlong west of the 28th mile stone in the Yedatore-hole-narsipur Road. It is 36 ft long x 25 ft broad x 15 ft deep (average). The reef met with here is poor

both

both in quality and quantity. No.3 cit, one furlong east of the 28th mile stone in the same road, showing only a trace of the reef, is 12' x 12' x 12'

Besides these, there are a number of small excavations mostly along the strike of the schists snowing very little of the mineral prospected for. All these pits are situated in Government waste land and are not deep enough to be dangerous. They may get filled up by natural causes in due course.

The mineral obtainable on this block can to a certain extent be fiberized and reduced to a fluffy mass by suitable mechanical appliances but how far the material obtained will be marketable will depend upon the results of the experiments, which I was informed were being conducted in Mysore.

Operations were suspended on this block sometime in June 1919.

Sd/ C.E.Suryanarayana Rao

Ag. Inspector of Mines,

7-5-1920.

"Copy"

B. Rangaswami

Director,

Mysore Geological Department.

The workings on Bettadasatenahalli block are situated in a valley on southern slopes of Mudalgudda 3509 range. Work was commenced here sometime in February 1919. In the first instance, a considerable portion of the time and energy had to be devoted to the clearing of forest growth, formation of foot paths and pegging out pit sites. About ½ dozen pits of varying dimensions have been put down in a steeply inclined valley, which runs in a S.E. direction. Except during the agricultural seasons, e.g., transplanting, harvesting, etc., when labour is not easily available, about 100 coolies are employed on the average every day. The topmost pit No.1 is south of 3509 and 200 ft below it. The other pits are in the valley at different horizons. Their position and dimensions are as under :--

No. of pit.	Dimensions in feet. L. B D	Remarks.
1	100 x 30 x 4 average	
2	50 x 30 x 9 "	Is 50 ft N.E. of No.1.
3	100 x 30 x 0 ..	Is 100 ft E. of No.2 Excavation not yet begun.
4	50 x 13 x 9 average	Is 50 ft E. of No.3.
5	41 x 27 x 6 "	Is 25 ft E. of No.4.
6	68 x 70 x 10 "	Is 25 ft E. of No.5.

None of the pits have gone down to any appreciable depth to indicate the nature and extent of the mineral veins. At present, the pits are not dangerous. The bottom pits are however liable to be flooded in heavy rains, if proper provision is not made to divert the water from entering them. The hill slopes are somewhat slippery and it would be better if a general foot path could be provided at some distance away from the pits to prevent likely accidents happening. This however

is not an immediate necessity but provision can be made for it now as the work has to be carried on here, so I was informed, on a large scale.

A small quantity of the mineral has been exposed in the pits and considerable work has yet to be done to prove the extent and quality of the mineral veins. The licensees is very enthusiastic in his work and it is hoped he will vigorously carry on the prospecting operations. The mineral won from the pits is stacked in heaps of different sizes and grades near a shed constructed on the works and the samples taken therefrom and sent to Mysore are awaiting the results of experiments. It is somewhat dull in colour but is said to yield fibres of some length and strength. Further developments are anxiously awaited.

As already stated the pits are located in a hilly country and are not easily get-at-able. A gravel road from Hole Narsipur to Bettadasatenhalli is now being laid and the continuation of it beyond to the works - a distance of about 2½ to 3 miles is not easy of accomplishment without incurring heavy expenditure. The results obtained so far by prospecting are encouraging and satisfactory.

Sd/ C.E. Suryanarayana Rao,
Ag. Inspector of Mines,
7-5-1920.

---0---

"Copy"

B. Jaya Rao.
Director;
Mysore Geological Department.

G.R.S. 26]

Goi File No. 64-20
Serial No. 3

Diary No. of letter replied to

No. 1089

General and Revenue Secretariat
( )
, *the* 19

To

The Director, Dept of Geology

Sir,

With reference to your letter no 53 dated 7/8th July 1920 stating that the application received from the Mysore Kadur Minerals Mining Co will be submitted to Govt after inspecting the work done by MN. M.L Varadarajaya and by Messrs V.N Krishnaiyer and T. Chinnaswamy Iyer, I am directed to state that the matter may kindly be treated as urgent and the report submitted at a very early date.

I have etc

14/7/20.
for Secy to Govt.

14/7/20

Date of issue 16/7

Signed by Mr Secy

over.

SUBJECT.

No 207/Geol. 3 samples in 1 packet. 5, ST. MARK'S ROAD,

Bangalore, 20th August 1920.

FROM

DR. W. F. SMEETH, M.A., D.SC., B.E., etc.,

DIRECTOR OF MINES AND GEOLOGY IN MYSORE.

SECRETARIAT. IV MINOR Depts. 23 AUG 1920

DIARY NO: 2962

Geol 64-1919.

File No:

Serial No:

To

C. S. Balasundram Iyer, Esq., B.A.,

Chief Secretary to the Govt. of Mysore,

Bangalore.

S i r,

In reply to your No.1090 dated the 16th of July 1920 forwarding some samples of asbestos I am returning the samples herewith in a separate packet.

The larger piece is the ordinary Amphibole asbestos common in Mysore. It appears to be a fairly decent sample of this class of material but it is not a high class material and bears no comparison with Canadian asbestos.

The smaller lump appears to be a specimen of Crysotile (fibrous olivine). It is a similar mineral to the Canadian asbestos but does not appear to be a very high class sample of it. So far as we know it occurs very sparingly in Mysore.

The shreded asbestos enclosed in the packet with the foregoing two lumps appears to be a mixed sample part of which is Amphibole asbestos and part appears to be ~~Crysotile~~ Crysotile.

The materials are not essentially different from those which have already been found but if the Crysotile variety could be found in considerable quantities it would be a valuable material

I have the honour to be,

S i r,

Your most obedient Servant,

W. F. Smeeth

Director of Mines and Geology.

20

G.R.S. 26]

Geol File No 64-20
Serial No 6

Diary No. of letter replied to _____

No. 4725

General and Rev. Secretariat
( )
, *the* 190 .

To

B. Jayakar Esq F.G.S.
Director, Dept of Geology

Date of issue 28/8

Signed by h'cs/B

Dear Sir,

~~I am desired to state that~~

The ~~First Member of Council~~ Dewan will be glad to see you in ~~his office~~ the Public Offices at 4 P.M. on Monday the 30th instant about the work done ~~by~~ in connection with asbestos industry by Mr. M.K. Vardhamanaiya and the application of the Mysore Hassan Minerals Mining Company regarding asbestos. The report promised in ~~your~~ the letter your letter no 530 of 7/8-7-20 may also be brought if ~~the inspection of the work done by the parties has been made~~ as it is understood you have inspected the work done by the parties.

Yours sincerely

dcg 28/8/20.

28/8/20

28

over.

SUBJECT.

21

M. G. D. 12.

No. 534 Six Seals

Dated, Bangalore, 13th Sep. '20.

DIARY NO: 18 E 3146.

Ch Secy 20 SEP 1920

9636

From

B. JAYA RAM, Esquire, F.G.S.,
Director, Mysore Geological Department.

19 -19
Section: Geol 64-20
File No:
Serial No:

To

C.S. Balasundaram Iyer, Esq., B.A.,
Chief Secretary to the Government of
H.H. the Maharaja of Mysore, Bangalore.

CHIEF SECRETARIAT IV MINOR Depts. 20 SEP 1920

Sir,

With reference to your letter No.G.3941, dated 18th August 1920, I have the honor to forward herewith, for the information and orders of Government, a copy of an application, dated 6th June 1920, from Messrs.V.N.Krishna Iyer and T. Chinnasawmy Iyer, Proprietors of the Mysore Hassan Minerals Mining Co., for an exploring license with preferential rights for prospecting licenses and mining leases for asbestos over four Districts, viz,- Bangalore Tumkur, Kadur and Chitaldrug. The applicants have paid a fee of Rs.40/- into the Mysore District Treasury on account of the exploring licenses applied for.

on 4th Nov. '19 (copy herewith)

In the first instance, the applicants applied for a sole monopoly for asbestos over five Districts, viz,- Bangalore, Tumkur, Kadur, Shimoga and Chitaldrug, on terms similar to those under which a monopoly was granted to Mr. M.L. Vardhamaniah in 1918 over the Districts of Mysore and Hassan, and they stated that they would require the whole of the output of asbestos obtainable throughout the State for the manufacture of various asbestos products, and that with the large financial resources placed at their disposal by Messrs. V.N. Subbaramier & Bros., Electrical Engineers

Engineers, they were developing the asbestos industry on a large scale. Subsequently they requested that, pending the disposal of their application for the monopoly for asbestos, they might be granted prospecting licenses over all asbestos blocks in the aforesaid five districts mentioned in Bulletin No.7 of this Department. Thereupon, information was called for from the applicants as to what they specifically intended doing in respect of asbestos in the said Districts, the products they intended to manufacture and the amount of working capital they were in a position to provide for the business, and with regard to the licenses they wanted over the areas mentioned in Bulletin No.7, they were advised to submit formal applications.

In letters, dated 21st and 23rd November 1919, copies of which are enclosed herewith, they state (1) that they want to explore and prospect all asbestos areas in the Mysore Province as far as possible and to treat the crude asbestos on most up-to-date lines and convert them into refined stuff and further to promote "a concern to manufacture all asbestos products" (2) that they are in a position to invest a sum of five lakhs of rupees to work the areas throughout the State and to treat the crude asbestos, and (3) that they have before them a rough estimate for a factory at a cost of about 25 to 30 lakhs of rupees. It will thus be seen that the objects with which Messrs. Krishna Iyer and Chinnasawmy Iyer have applied for the monopoly are quite similar to those which Mr. Vardhamaniah has been endeavouring to fulfil since the grant of the monopoly to him.

Messrs. Krishna Iyer and Chinnasawmy Iyer now request that, in preference to the monopoly originally applied for by them, they may be granted an exploring license over the Districts of Bangalore, Tumkur, Kadur and Chitaldrug with preferential rights for prospecting licenses and mining leases

for asbestos. The grounds upon which they urge the grant of the concession are :--

(1) That Mr. Chinnasawmy Iyer was the first to discover several asbestos blocks in the Hole Narsipur Taluk and to take out licenses and leases for them, and that they are the pioneers of the asbestos industry in the State and also the first and the only licensees who have up to date paid royalty to Government on asbestos;

(2) That they have carried out extensive operations on the asbestos blocks already held by them and that they are now endeavouring to establish a big and permanent industry in asbestos on a considerably larger scale than has been attempted hitherto by any one else; and

(3) That their main object in applying for the exploring licenses with preferential rights is to ascertain as definitely as possible the probable areas which contain deposits of asbestos in the aforesaid four districts.

Messrs. Krishna Iyer and Chinnasawmy Iyer further request that they may be granted exploring licenses over the Districts of Mysore and Hassan also on the termination of the monopoly granted to Mr. Vardhamaniah. They also suggest (1) a comparative review of the work done by themselves and Mr. Vardhamaniah in connection with asbestos, and (2) a consideration of the question whether in view of the poor work done by Mr. Vardhamanian, the continuance of the monopoly to him during the remaining period of its term would be reasonable or justified.

It is no doubt true that Mr. Chinnasawmy Iyer is the first of our licensees who has paid royalty on asbestos, but neither he nor Mr. Krishna Iyer has done anything so far in regard to the manufacture of asbestos products except that

they

they have been expressing a strong desire to establish a big industry in asbestos.

Messrs. Krishna Iyer and Chinnasawmy Iyer already hold four blocks for asbestos (1 under mining lease and 3 under prospecting licenses) in the Hole Narsipur Taluk, and one of them, viz,- The Kabbur Block, is being held since 1911. The accompanying statement shows the quantity of asbestos excavated and removed from the several blocks up to 30th June 1920. An inspection of the work done on these blocks and also on the blocks held by Mr. Vardhamaniah was made by Mr. C.E. Surya-narayana Rao, Offg. Inspector of Mines, and copies of his notes have already been submitted. The work done by both the parties was also inspected by me in the second week of August 1920. A report has also been lately received from Mr. Vardha-maniah and it contains a very interesting and useful account of the work done not only in respect of the exploitation of asbestos in different areas in the Districts of Mysore and Hassan, but also the results of several experimental tests carried out by experts on asbestos matters. Interesting deposits of asbestos suited for the manufacture of mill boards, shingles, asbestos cement, etc., have been located and the machinery for their manufacture has been received and is in course of construction. The only matter about which Mr. Vardhamaniah is anxious is whether sufficient quantity of asbestos can be had in the State to keep the plant running simultaneously and he suggests that the resources of asbestos in the State should be carefully conserved and no avoidable waste of raw material allowed. A copy of Mr. Vardhamaniah's report is submitted herewith for the information of Government.

ide my letter
o Government,
o.53, dated
th July 1920.

Of the 4 blocks held by Messrs. Chinnasawmy Iyer and and Krishna Iyer, it is only in the Kabbur Block that any appreciable amount of work has been done. According to the returns received, 650½ tons of asbestos have been extracted from

from the date of the grant of the license in 1911 up to 30th June 1920. The licensees were under an obligation to sell all the asbestos from that Mine to Mr. Vardhamaniah under an agreement entered into in 1917. There is at present a dispute in respect of this agreement between Mr. Vardhamaniah and Messrs. V.N. Krishna Iyer and T. Chinnasawmy Iyer, and the parties are at variance with each other now.

There is little work reported to be done in the other blocks held by them.

Separately submitted

Mr. Krishna Iyer sold by public auction on the 9th August 1920, 1000 tons of asbestos from the Kabbur Mine for Rs.19,000/- and a separate communication has already been submitted to Government in respect of certain irregularities in connection therewith on the part of Messrs. Krishna Iyer and Chinnasawmy Iyer, (vide my letter No:497, dated 9th September 1920).

The foregoing is a synopsis of the most salient facts and figures relating to the respective representations of Messrs. Krishna Iyer and Vardhamaniah.

With a view to gain a personal knowledge of the actual work done by the two parties, I went to Mysore on the morning of the 11th of August 1920 and gave an interview to Mr. Krishna Iyer and Mr. Vardhamaniah on the same afternoon.

On the following day I visited and inspected the following blocks in the Hole Narsipur Taluk :--

(1) Mr. Vardhamaniah's Asbestos Block - P.L.No.507 near Idegondanhalli on 12th August '20;

(2) Mr. Krishna Iyer's Asbestos Blocks - P.L.No.350 near Kabbur and P.L.No.495 near Hiretalal on 12th August 1920;

(3) Mr. Vardhamaniah's Asbestos Block - P.L.No.503 near Bettadsatenhalli, on 13th Aug.'20.

Of the above (1) and (3), worked by Mr. Vardhamaniah, have

have been recently opened up and of which we have had no previous knowledge.

The prospecting work so far done on the Block (1) has apparently yielded very indifferent results. The asbestos found in the open-cut wide trench has been tested and found to be unsuited for the manufacture of mill-boards. In consequence, no further development work has been proceeded with at present.

But a considerable amount of good intelligent work has been done on the prospecting block - Prospecting License No.503.

The nature of the hilly ground and the obscure mode of occurrence of asbestos in the altered ultra-basic rocks renders exploitation and trenching work extremely difficult. The asbestos mineral occurs in a somewhat sporadic and different manner to how it occurs in Kabbur pits. It also seems to vary in kind and quality which has evidently been testified to suit admirably for the manufacture of mill-boards.

In the hope of finding sufficiently large quantities of this class of asbestos, Mr. Vardhamaniah has already got out his machinery for manufacturing mill-boards.

With regard to the work done by Mr. Krishna Iyer on the Kabbur Block - P.L.No.350 - which I had inspected in the early part of 1918, it may be frankly stated that the present workings show nothing more than what they did nearly two years ago. There are one or two trenches or pits to the south of the old main working which have proved nothing of any value. The old main working is the only large pit which has yielded all the available asbestos in the block. It has been worked on the same old primitive methods and with no other object than to dig out the asbestos from one or two veins or infilled cracks. The block has never been systematically prospected

with

with the more modern methods of parallel trenching, costeaning and shaft-sinking with the result that no reliable opinion can be arrived at in regard to the precise mode of occurrence of the mineral and to the probable quantity and quality available.

The only marked improvement I could notice is the sma__ _atched shed in which an attempt had been made to stack the asbestos according to apparent grades in quality.

The work done on Hiritalal Block - P.L.No.495 - is only of a preliminary character and consisted in a few shallow trenches and pits which showed asbestos of similar quality as that of Kabbur stuff occurring in small sporadic quantity.

The staff and the methods employed by Mr. Krishna Iyer are not altogether satisfactory. Besides his calling himself a Mineral Expert and suggesting that his work is not only better than that done by Mr. Vardhamaniah but that in view of the poor work done by Mr. Vardhamaniah, whether it would be reasonable or justifiable to continue his monopoly over asbestos in the Mysore and Hassan Districts during the remaining period of its term, are absolutely unwarranted and deceitful and malicious in character and design.

In fact an all round comparison of the work done by the two parties goes to prove clearly that Mr. Vardhamaniah's work has a great deal to show in deeds while Mr. Krishna Iyer's much in glowing words.

I have inspected Mr. Vardhamaniah's business premises and factory site for asbestos plant. All the machinery has been received and unpacked and will be fitted up as soon as the buildings, which are in progress, are completed. Mr. Sitaramachar, his Managing Partner, has shown me all the correspondence and work done on the development of the asbestos industry. His report is not only highly

interesting

interesting but very lucidly and faithfully drawn up.

So I can confidently inform the Government that Mr. Vardhamaniah has spared no pains and money and that the monopoly granted to him by the gracious Government of H.H. the Maharaja of Mysore has been fully justified. It also behoves me to point out here that the asbestos mill-board industry will be started on somewhat speculative chances of success, as the quality of asbestos required has not yet been found in sufficiently large quantities, and as such every encouragement should be given to Mr. Vardhamaniah, who will be virtually the pioneer in the field of asbestos industry in the State; though it is not my intention to entirely kill all competition which on principle is acceptedly healthy. But in cases like the asbestos industry, where the natural raw material is known to be limited and indifferent both in quantity and quality, I am inclined to agree with the policy of Government in not encouraging too many competitions in any one line of industry, especially in the initial stages and before at least one industry had been firmly established.

These considerations bring me to the main question, namely, the grant of exploring licenses with preferential rights for asbestos over the four districts of Bangalore, Tumkur, Kadur and Chitaldrug to Mr. Krishna Iyer.

In view of the fact that Mr. Vardhamaniah will be very soon starting his asbestos industry which would require much or all of the suitable raw asbestos of the State, it would neither be fair nor advisable for me to recommend Mr. Krishna Iyer's application for exploring licenses with preferential rights over four Districts, all at one time.

From what I have seen of Mr. Krishna Iyer and his work, I doubt very much whether he will be in a fair position to start any asbestos industry in the State for a good long

time

time to come yet.

It would be quite sufficient, if not really better, for him to take up one district at a time and prove it. I beg to recommend, therefore, that he may, in the first instance, be offered an exploring license with special protection in regard to asbestos over any one district to be selected by him out of the four districts of Bangalore, Tumkur, Kadur and Chitaldrug. After he has thoroughly explored for asbestos in the district so selected by him, he may, in lieu thereof, apply, if necessary, for a license over another district and in this way he may, at the discretion of Government, be given licenses over the four districts at the rate of one district at a time. The special protection, which I recommend to be granted under the exploring license, is the preferential treatment of Mr. Krishna Iyer's applications for prospecting licenses or mining leases for asbestos only in such cases and on such terms as may be deemed fit by Government, subject to the following conditions :--

(1) That the Government shall be at liberty to grant concessions to others in respect of minerals other than asbestos within the area comprised in the exploring license;

(2) That no application from Mr. Krishna Iyer will be entertained in respect of areas over which prospecting or mining rights have been granted to or applied for by others before the date of the receipt of such application;

(3) That the protection granted shall not interfere with the disposal of the applications already received from others; and

(4) That the asbestos obtained from the blocks granted under prospecting licenses and mining leases should, as far as possible, be used only for purposes of local manufacture and not exported in a raw state to places outside Mysore, unless the Government and other holders of licenses or leases for asbestos in the State are given the first option of purchase of the same, at the current market price and have refused to avail themselves of such option.

Messrs.

Messrs. Krishna Iyer and Chinnasawmy Iyer have also applied for prospecting licenses for asbestos and certain other minerals over certain areas in the Tumkur, Kadur and Chitaldrug Districts, mentioned in Bulletin No.7 of this Department, and there are applications from others also over some of these areas. I am submitting all the applications separately for the orders of Government and recommend that they may be disposed of on their own merits, in accordance with condition (3) under which an exploring license with preferential rights is recommended to be granted to Mr. Krishna Iyer.

I have the honor to be,

Sir,

Your most obedient servant,

B Jagannath

Director,

Mysore Geological Department.

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Letter dated 6th June 1920 from Messrs V.N.Krishna Iyer and T. Chinnaswami Iyer, Proprietors, the Mysore Hassan Minerale Mining Company, Mysore, to the Director of Mines and Geology, Mysore Govt. Mysore.

In inviting your kind attention to the correspondence ending with our letter No.415 dated 21st November 1919, we have the honour to apply for an exploring license over each of the Districts of Bangalore, Tumkur, Kadur, Chitaldrug, with preferential rights for prospecting licenses and mining leases for asbestos.

A sum of Rs.40/- being the fee for the exploring licenses at Rs.10/- for each District has been paid into Mysore Government Treasury and the Treasury receipt is submitted herewith.

That we are the pioneers of the asbestos industry in the State and that we are the first and the only licensees and lessees who have up-to-date paid royalty on asbestos are facts which are quite well-known to Dr. Smeeth, yourself and the Government and which the records in your office will show readily.

One of us, Mr.T. Chinnaswami Iyer, was the first to discover several asbestos blocks in the Holenarasipur Taluk and to take out licenses and lease for them from the Government. Extensive operations have been carried on by us on the asbestos blocks held by us and we are now endeavouring to establish the asbestos industry in the state on a considerably larger scale ~~xxxxxxxx~~ than has hitherto been attempted by anybody else. The details of the scheme we are anxious to pursue have been clearly explained in our letter mentioned above. Our ambition is to thoroughly exploit all the available asbestos in the State of Mysore and especially to manufacture on as large a scale as possible various kinds of articles which can be placed on the markets both in India and abroad.

We cannot content ourselves with the manufacture of only a few articles or a few varieties of them, but are anxious to establish a big and permanent industry in the mineral. it is a well-known fact

that

that no business which does not result in a substantial profit to the promoters or which does not in any material degree benefit the public can be regarded as worthy of being classed as an " Industry ".

We have no doubt that you will quite recognise how essential it is that an industry like the one now in question should have in the first instance the guarantee of a supply of sufficient quantities of raw material; secondly sound advice and guidance in regard to the most economic methods of work; thirdly the installation of machinery and plant at a huge cost; and lastly but chiefly the provision of enormous capital for the success of the venture. The main object with which the exploring licenses with preferential rights are now applied for is to ascertain as definitely as possible the probable areas in the four Districts mentioned above which contain deposits of asbestos and the quality and the quantity which may be expected for the successful working of the scheme.

With regard to expert advice, we have already decided to depute one of our qualified employees to the Dominion of Canada to undergo a special training and get as thorough an acquaintance as possible with the conditions and processes of up-to-date manufacture of all asbestos products.

Arrangements are in progress for getting the required plant and machinery and we are quite in a position to provide necessary capital out of our own resources and to supplement the same eventually if need be, by the formation of a joint Stock Company.

In view of all these circumstances we beg that you may be pleased to recommend to the Government the grant of exploring licenses over the four Districts mentioned above and also over the Mysore and Hassan Districts on the termination of the monopoly granted over them to Mr. M.L.Varadamaniah. Although it would amount to a breach of modesty on our part to bring to the notice of the Govt. that so little work has been done up-to-date by the said gentlemen that it is a question for you to consider whether the continuance of the monopoly during the remaining period of his term would be reasonable and justified, we are compelled to request you to consider this matter in the best interests of the mining industry and especially

the

the development of the asbestos industry in the State. We at the same time solicit a comparative review by your Department of the work done by us and that done by Mr. Vardhamaniah up to date since the grant of the monopoly to him. Since the present combine was formed in August 1919, extensive operations have been carried on by us in the few blocks that we hold and we have at present 1000 tons of asbestos ready on hand; whereas we learn that although Mr. Vardhamaniah holds concessions over two large Districts of Mysore and Hassan, the work turned out so far does not exceed a few trial pits in not more than two or three blocks and the asbestos obtained from all these blocks doesnot exceed 50 tons. It may be pleaded by Mr. Vardhamaniah that a larger quantity of asbestos was not extracted owing to want of machinery. We respectfully request you to consider whether his plea can be accepted without any hesitation as economical working would generally require the raw materials to be kept ready for treatment by machinery.

We will request you to kindly consider if this amount and kind of work can be regarded as such to justify the continuance of the monopoly any further.

In conclusion, we pray that you will be kind enough to give these representations your best and most sympathetic consideration and extend to us all possible facilities and encouragement in our attempts to establish on an extensive scale the asbestos industry which we have developed at a very high expenditure of our time and money. The possibilities of success are very convincing to us and we trust that the Government who are anxious of the development of mineral industries view our representations in a liberal and sympathetic manner.

"Copy"

B. Rangnath Rao

Director,
Mysore Geological Department.

Letter, dated 4th November 1919, from Messrs. T. Chinnasawmy Iyer and V.N. Krishna Iyer, to the Director, Department of Mines and Geology, Bangalore.

Our proposed industry "Mysore Asbestos, Cement and Sand-lime Products Manufacturing Company, Limited.

We have the honor to intimate to you that before getting the above Company floated successfully and in order to enlighten the public with regard to the vast scope and possibilities this scheme affords we thought it our patriotic duty to write series of articles on different manufactures connected with the scheme in the Mysore Economic Journal and first of ~~such~~ such articles we have already sent up for the Press and we hope this will appear in the current month's Economic Journal. A cope of what we have already forwarded to the Press is herewith enclosed for your perusal so that you will realise the motive under which we now approach you in this connection.

2. To manufacture various asbestos products outlined in the scheme we would be requiring the whole output of the Asbestos Mines available throughout the Province in addition to the Mines we now hold. We shall therefore feel extremely obliged if you will confer us the sole monopoly for the Districts of Kadur, Chitaldrug, Shimoga, Tumkur and Bangalore on the same terms and conditions under which the Government of H.H. the Maharaja of Mysore have been pleased to grant the monopoly to Mr. Vardhamaniah of Mysore for the two Districts of Mysore and Hassan excluding the Mines owned by us.

3. We may mention that our co-partner Mr.T.Chinnasamy Iyer first undertook to work in the Asbestos Mine by prospecting and developing and steady improvements have been maintained by

him

him throughout. Unfortunately owing to the war there was a temporary break-down but now happily with the advent of our new partner Mr. V.N. Krishna Iyer and with his vast experience in business and his special knowledge in industries as proposed above, we have been able to work the Mines in a large scale and the time may not be far off when you will find the wonderful progress attained in our Mines. The old wrong workings have been now completely rectified and new shafts have been dug to suit the scientific workings and also to avoid any danger or accident. We would also mention with large financial resources offered and placed before us by our Agents, Secretaries and Treasurers Messrs. V.N. Subbaramier & Brothers, Electrical Engineers, Exporters, &c., we are developing this special industry, mainly asbestos, in large scale.

4. We request you will be good enough to grant us sole monopoly for the Districts as prayed for in our this letter.

Thanking you in anticipation.

"Copy"

B. Rajam Naus

Director,

Mysore Geological Department.

Letter No.415, dated 21st November 1919, from Messrs.T. Chinnasawmy Iyer and V.V. Krishna Iyer, Proprietors. The Mysore Hassan Mining Co., Kadur, to the Director, Mysore Geological Department.

We beg leave with due honour to acknowledge receipt of your letter No.1360 of 19th instant, and note contents with extreme pleasure and beg to tender our humble thanks to you for the same.

Granting of prospecting licenses prior to sanction of our monopoly for asbestos in the five districts prayed for. As advised to you in our letter No.388 of 19th instant, we have remitted the fee for Kadur and Chitaldrug, and we have also remitted and applied for prospecting license in Tumkur Distt., vide our application dated 21st August 1919, We will in a day or two remit into the Treasury for the remaining districts, i.e., Shimoga and Bangalore, and submit diagrams of the spot we select together with application forms duly filled in for all.

With reference to the last para of your under reply, we beg leave to submit herewith in a separate letter marked "Private and Confidential" which we do, since we think, our reply basing facts and figures connected with our this scheme, i.e., the object of our over-anxiety in obtaining a monopoly for all the districts, has not been developed to a stage so as to make everything quite public other than what we submit herein under the heads I to VII.

I. Exploring and prospecting all asbestos areas in the Mysore Province as far as possible.

II. To study and find out the various groups of minerals which fall under the term "Asbestos", such as (1) Antophyllite. (2) Amphibole and (3) Serpentine.

960

III. By means of real prospecting in different localities in each of the districts, we are persistent to find out and see whether Mysore asbestos areas contain all the various classes of asbestos which come under the (1) Amphibole or Hornblende Asbestos, such as- 1. Trevolite, 2. Actiholite, 3. Asbestos 4. Mountain Wood, Mountain leather and Mountain cork and 5. Crocidolite., (2) Serpentine asbestos, such as - 1.Pierolite, 2. Soapstone (Talc) and (3) Chrysolite,

IV. To equip a complete and up-to-date Mining and Milling Plant for working the deposits at the quarries and to treat the crude asbestos into various refined fibres so as to make them ready for the world's markets just to excite the interests of those who are concerned in the asbestos manufacture and trade, this will alone enlighten the foreign countries what the Mysore asbestos are and whether they are equal to the best Canadian ones especially the Chrysotile varieties. So far we know, the mining and milling problem have not been scientifically carried out by any one who is engaged in the asbestos working. A most up-to-date mechanical treatment would be of immense value both to the Miners and Purchasers of refined stuff. This requires earnest and steady attention with special devotion on the part of the milling owner, and also an extreme venturesome spirit and a strong will and determination to pour out money without caring for an immediate return. When this is done, our Mysore asbestos will be known in the foreign markets better as to how they compare with the best Canadian asbestos both in refined stuff and in various manufactured products. From the small tests locally made out, we may forecast that Mysore asbestos will one day be found second to none available throughout Europe and the Continent. But, to give out a bold pronouncement on this point, we still await reports on the tests from different eminent foreign Scientists, and as soon as these are to hand, we shall be happy to place same before you.

Yes.

V. You will be delighted to hear that so far from our exploitation carried out at the Thottakara asbestos area and at Kabbur Mines, Hole Narsipur, there is every probability that Mysore contain the best asbestos of all classes in the Amphibole or Hornblende group and also in the Serpentine groups, leaving the Antophyllite group as this last group of mineral has no commercial value, and hence it is out of our programme. We will submit samples of various classes and especially those of the best Chrysotile varieties in Serpentine group, shortly. We may mention that the quality of our Mysore asbestos may be found equal to other various foreign asbestos mined in various foreign countries and especially to the much talked of and the very well known Canadian Serpentine group chiefly of Chrysotile variety.

VI. Next problem of ours and that too before we come out with a prospectus for promoting a concern to manufacture all the asbestos products, we have to determine the output we could obtain from all the asbestos areas throughout the State, and this is not an easy problem to be solved all at once. Even the best of the Scientists who have been spending much time of their life time in the asbestos mining have not been able to arrive at the exact depth of any mines so as to get a correct data of the reef. Only in one mine in Canada, they have been able to find out a reef to a depth of 400 feet. This is an exception to all other mine reefs which end almost in a depth of 200 feet. The greatest difficulty is that no mechanical device has been invented so far, to find out the depths by a trial mechanical working just like well-boring, etc., and hence they have to practically extend the real working operation in large scale till they reach the deepest surface that is the fountain head of the reef.

In addition to our above explanation, we have given out a clear programme of what we proposed doing in respect of

the asbestos in the Province as a whole, in our letter to you dated 4th November 1919, wherein you will find the enclosure deals with our object for floating Joint Stock Company for manufacturing "Everything in Asbestos" which asbestos products, we have elaborately explained therein. A kind perusal of the copy of our article dealing with asbestos would place you in better light of our programme.

VII. Other particulars in reply to your last para under reply is given in our private and confidential letter which will follow.

Hoping our efforts would be better cemented with your every sympathetic support, co-operation, advices and consultation, which we may be seeking at your hands from time to time.

"Copy"

for Director,
Mysore Geological Department.

PRIVATE AND CONFIDENTIAL.

LetterNo.434, dated 23rd November 1919, from Messrs. T. Chinnasawmy Iyer and V.N. Krishna Iyer, Kabbur, to the Director, Mysore Geological Department.

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With further reference to our letter No.415 of 21st instt. and as a reply in completion to the 3rd para of your letter No.1360 of 19th instant, we beg to submit as under :--

I. We think that we have explained in our letter No.415 of 21st instant would be quite sufficient to justify your recommending us for the moncpoly of the five districts sought for, as we have therein explained what we intend doing with the crude asbestos in these districts.

II. Regarding the amount of working capital, we are in a position to provide for the business, we have worked out an estimate running to a figure of almost five lakhs to work the areas throughout the State and to treat the crude asbestos into refined fibres, etc., so as to make them ready for the markets. This amount we are in a position to invest from funds of our Agents Secretaries and Treasurers, Messrs. V.N.Subbarama Iyer & Bros., which firm is no other than the co-partners of Mr. V.N.Krishna Iyer, the undersigned, of our this Mining Concern, to cope with the various workings which may be in progress.

III. Our proposal to start a Joint Stock Co., is not a problem to be thought of all at once, nor a scheme to equip our (Mining Working Capital), but by the investigations and the output of the State are found to be satisfactory to meet out our required quantity of crude asbestos for a factory, it would be our proud day as Miners to take advantage of such an opportunity and to accomplish our goal. We have before us a rough estimate for a factory which the foreign experts work out

to

Kcs

to almost 25 to 30 lakhs. This amount is for a factory to manufacture for a continuous working of eight hours a day. This estimate too, is based on the present very high and abnormal prices prevailing in foreign markets.

IV. The question of finance does not at all affect our programme in any way as this is a matter which could be accomplished easily by men of commercial and industrial capabilities. When people are fully made known the scope and possibilities of the scheme and putting forward the data in detail showing what return they could expect, and when the return is guaranteed the successful flotation is assured. The required capital of 30 lakhs or double or treble the amount we could get subscribed by a few of our interested Indian limited friends, but unfortunately who are not Mysoreans. Our intention is to give benefit out of the scheme first to Mysoreans and then those who are out of the State. With this object in view, and to excite the interests of all, we are writing series of articles in the Economic Journal, so that all poor and rich alike would come forward with their might, when we are in a position to come out with our Prospectus and Memorandum of Association, just taking advantage of the full benefit of our scheme in view, may provide

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"Copy"

M. C. Nanjundayya

Director,

Mysore Geological Department.

Statement showing the quantity of Asbestos and certain other minerals extracted and removed under the several licenses held by ~~Messrs~~ T. Chinnaswamy Iyer and V.N. Krishna Iyer from the date of their grant up to the 30th June 1920.

No. of Lease or License.	Date of grant.	Situation of the block (Taluk)	Mineral	Quantity extracted	Quantity removed	Royalty
				Tons	Tons	Rs.
350	19-8-1911	Hole-Narsipur	Asbestos	650 1/2	487 1/2	730/-
			Mica	4-12-2-26	4-12-2-26	233-13-9
519	10-5--1918	do	Asbestos	50	Nil	Nil
			Mica&c	Nil	Nil	Nil
499	14-9-1918	do	Asbestos	25	Nil	Nil
			Mica &c	Nil	Nil	Nil
498	21-9-1918	do	Magnesite	200 1/2	1/2	0-5-0
			Chrome	750	Nil	Nil
			Asbestos &c	Nil	Nil	Nil
346	12-12-1910	Yedatore	Mica	0-3-3-2	0-3-3-2	7-0-0
			Potstone	20-12-2-0	20-12-2-0	10-10-5

B. Jagannatha Rao
Director,
Mysore Geological Department.

Asbestos.

For very nearly three years, the development of the Asbestos industry in the State has been engaging my attention and up to this date, a sum of nearly two lacs of rupees has been spent. I shall briefly explain in this note the results obtained so far and the future outlook of this industry.

At the outset I beg to emphasise the fact that it has been my intention to utilise the resources in this mineral in the manufacture of finished products and not merely to mine and work for it with a view to sell the raw material. To achieve this end, it was found necessary to carry out laborious and costly experiments here and what is more, to consult experts in the line with the object of confirming the results obtained by us. The absence of experts in India made matters difficult,, but it was more difficult still to get in touch with men who had a thorough knowledge of the machinery and processes used in the manufacture of Asbestos products. This industry in the United States of America and United Kingdom has been very highly specialised and developed,, and the knowledge of the different processes involved in producing the finished article is very closely held by those directly in the industry. To obtain reliable information from foreign experts was therefore the first step in the development of this industry and I am glad to inform that a very good beginning has been made, as will be shown later in this report.

ASBESTOS - ITS VARIETIES.

There are two chief varieties recognised and these are

(1) The Amphibole variety

& (2) The

& (2) The Chrysotile, or Canadian, variety.

Of these, the second variety is. as its name indicates, mainly found in Canada and is the type of Asbestos that is largely used in the manufacture of Asbestos products. The true Amphibole type is of little or no value except for the purposes of boiler and steam pipe lagging; but even here, it has not found much favour with users on account of its defect to adhere to the surfaces to be covered.

Though these are the two types into which Asbestos is classed, there are a number of intermediate varieties of commercial importance, and the Mysore variety has to be classed under this head. Whatever class Mysore Asbestos may belong, its physical and chemical properties are of prime importance if it has to be utilised in the manufacture of finished products. These products are :-

1) Boiler and steam pipe covering

2) Asbestos paper and mill board

3) Asbestos-Cement products such as plain sheets, corrugated sheets, tiles and lumber.

4) Magnesia-fibre (We have called this product by the trade name of - 'Magbestos.')

5) Ropes for packing.

6) Asbestos cloth for joints, break linings etc.

7) Asbestos cloth for curtains, fire-men's glove &c.

The above products are so graded that the first represents the lowest and the last the highest quality of the finished article.

Our

Our endeavour during our prospecting work has been to ascertain the utility of our finds in the manufacture of the above products. The Kabboor and Idegowdanahalli qualities have been found useful to a limited extent for use as a Boiler lagging. Our own work and the opinion of experts go to show that this quality is little used even for the manufacture of mill boards and still less for the other products noted in the list above. I note below the opinion of some of the people in the line on this material.

(1) C. Ltd.

Crude Asbestos - of little or no value to the Asbestos Spinner or Manufacturer, being too crystalline and brittle and when the preliminary process of crushing was completed it would be pulverised into little more than powder.

(2) B. F. W.

This material is practically of no use in the manufacture of Asbestos Cement material nor is it of any use for Asbestos Packing etc.

(3) B. E. & A.W.

We are already familiar with this kind of Asbestos which fibre lacks strength, owing to being very brittle, and same is therefore of no use for our purposes nor do we know anyone who could make use of such material.

(4) B. U. A. Co.

We cannot suggest any useful commercial purpose for such material.

The mineral does not appear to be Asbestos or Asbestiform in a true sense and is obviously unsuitable for any textile purposes. It might, however, be used in place of slag wool but the price would be quite prohibitive. The only other use that suggests itself to us is in small quantities for chemical filtration, but this would ~~present~~ represent such a small output that we do not think the matter is worth pursuing any further.

(5) T. B. A. Co.

Of very little commercial value since the strength of the Fibre is very weak indeed.

(6) R. A. Co.

We have examined the samples carefully but find that they are not suitable for our manufacture, as what we are using is a textile fibre.

These are the opinions of users of Asbestos. To further confirm this opinion on the Idegowdanahalli and Kabbur mineral, I sent samples to manufacturers of Asbestos machinery, requesting them to treat the samples in their laboratories and advise me in regard to its suitability for the manufacture of at least the lowest grade of finished product, namely, mill boards. As stated above, our experiments showed that it was not possible to make use of this quality in the manufacture of mill boards and the following was therefore a confirmation, more authoritative because it was from one of the best makers of Asbestos machinery. They said

' With regard to your sample No. 1
' (Kabbur and Idegowdanahalli mineral)
' we tried to make boards but it is
' so short in the fibre that the
' boards were useless.' Sd. R.F.G.

During all this period of commercial investigation, a thorough search for a higher grade of Asbestos was being made in all the areas favourable for its occurrence, and all samples collected were subjected to the same treatment and analysis as those described in detail above.

TREMOLITE.

At Bettadsathenahalli, near Hole Narsipur Taluk, we were able to locate an area containing Asbestos of a quality superior to any that we have yet found in Mysore. The Geology of this place is very interesting; it is however beyond my province to say anything about it in this report,

but

but I can safely state that the occurrence of the mineral here is most erratic and uncertain. Further, the ratio of the mineral obtained to the rock mined is very low being only 1/3 to 2/3 per cent.

In regard to the commercial properties of this Asbestos, chemical analysis showed the following results:-

Moisture	...	0.1
Loss on ignition	..	1.7
Silica	..	58.8
Ferrous oxide	..	4.3
Alumina	..	0.7
Lime	..	12.3
Magnesia	..	22.0
		99.9

On this analysis, the Superintendent of the Government of India Test House, Calcutta, wrote as follows:-

> The analysis of the fibrous part shows it to be Tremolite. This is the variety of Asbestos found in Italy. It may have a commercial value and it seems at least worth while drawing the attention of those interested in Asbestos to it. I understand however, that Italian Asbestos is of inferior importance to Canadian Asbestos, as it is comparatively short fibred and brittle.

On subjecting this material to special treatment we found that it was suited for the manufacture of mill boards and Asbestos-Cement products. Accordingly sufficiently large quantities were sent to England and America with a view to obtain the opinion of experts. From the results of the laboratory tests made in England, Messrs. B. Ltd. opined that this Asbestos was quite suited for the manufacture of mill boards and sent us a sample mill board out of our material. They write:-

> We enclose herewith two samples of Asbestos mill board made with your Asbestos sample No.2, i.e. the tremolite variety and you will, we think, agree that it is of excellent quality. We also enclose a sample of one of the best British made mill boards for comparison.

The comparison was very favourable and we accordingly placed an order for a plant as far back as June 1919. Though we were promised delivery in November / December of ~~19~~ 1919, the manufacturers could not deliver it in time, on account of labour troubles, more particularly due to the moulders' strike which lasted nearly four months. We are glad, however, to state that now the machinery has arrived in Mysore and we are actively engaged in its erection.

During all this time, we have been vigorously prospecting and searching for this particular quality of Asbestos with a view to secure sufficient quantity to keep the plant running continuously We Have not yet been able to locate any one area which holds out promises of abundant quantity, though we guess - mining is after all a reasoned guess - that with proper conservation and mixtures, we might be able to secure the minimum quantity of Asbestos to keep the plant we have now got going.

So far, no mention is made of the suitability of our material for the manufacture of the higher grade Asbestos products. To write even very briefly of the exhaustive preliminary work done by us would take several pages but we consider it very important to bring to your notice the results obtained in regard to the quality found in the Yenne-hole Rangan Betta area. Samples of this material were treated by an expert in New York who is a Consulting Engineer and who was formerly the manager of one of the biggest factories in the world exclusively devoted to the manufacture of Asbestos products.

products. This expert writes as follows :-

> I made samples of shingles that prove to be, to my surprise, more beautiful than any shingles that are at present made by any of the manufacturers of shingles and lumber in this country. I did not have the fibre as well prepared as I should have done, for the reason I was not expecting to obtain the results which I did; but the results were so very surprising to me that I have now prepared some of the Asbestos much more carefully and in the course of a few days I will have other samples which I will forward to you.
>
> The Asbestos from which these products are manufactured in this country make a very slippery pulp, and it is therefore difficult to manufacture without considerable loss, but the Asbestos which you have sent here are more of a woody character, and forms a sheet much more readily and without loss like the other. It also tends to cling together more in the woody fibre and therefore is more susceptible to the chemical and fillers which are used in the manufacture.

The sample referred to above were received by us and compare favourably with similar products manufactured in America. The results of comparison are as follows:-

> The samples were subjected to a pressure of 10,000 lbs. per sq. in. and of the two samples I am enclosing under separate cover each 37/128" thick, the Canadian broke at 94 lbs. and yours broke at 140 lbs. or 48.94% higher than the Canadian, both made by same formula.

This in brief, is the satge to which we have progressed in the development of the Asbestos industry. Its future outlook depends on three factors, namely

1) Quantity

2) Quality

3) Capital.

From the foregoing, it will be clear that I have come across certain deposits which contain a quality suited for the manufacture of finished products, and that full information on the processes involved in their manufacture

have

have been obtained. It is hardly necessary to state that large sums of money have been spent by me, not only on experiments made locally but also on foreign experts, analysts and consulting engineers. In regard to the capital, I beg to submit that a joint stock company under the name of

THE MYSORE ASBESTOS PRODUCTS CO. LTD.'

has been registered with a capital of Rs.2,50,000 with power to increase. The only factor, then, that is uncertain about the future of this industry is that of 'QUANTITY; from the experience so far gained in regard to the occurrence of this mineral, I find it highly risky to assume that a sufficient quantity could be had in all the areas in the State. The occurrence, as I have already stated, is erratic and disappointing; it is therefore essential that our resources must be carefully conserved and that there should be no avoidable waste of raw material.

Sd. M.L. Vardhamaniah.

Copy.

B. Jaya Rao

Director,

Mysore Geological Department.

G. R. S. VI—G/32] 4/10

SUBJECT.....

.....

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Diary No. of letter replied to.....

General and Revenue Secretariat

( )

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Date of issue 9/10

Signed by M Dey.

Section Geol

File No. 4-20

Serial No. 8

No. 57796

To The Director, Dept of Geology

Sir,

With reference to correspondence ending with your letter no. 534 dated 18th September 1920, I am directed to state that, as recommended by you, an exploring license with special protection in regard to asbestos may be offered to Mr. V.N. Krishna Iyer over any one ~~of the districts~~ to be selected by him out of the districts of Bangalore Tumkur, Kadur and Chitaldrug. The special protection to be shown will be the preferential treatment of Mr Krishna Iyer's applications for prospecting licenses o

over. P20

V/15

mining leases for asbestos in such cases

and on such terms as may be deemed fit

by Govt subject to the following conditions:-

(1) that Govt shall be at liberty to grant concessions to others in respect of minerals other than asbestos within the area comprised in the exploring license;

(2) that no application from Mr. Krishna Iyer will be entertained in respect of areas over which prospecting or mining rights have been granted to or applied for by others before the date of the receipt of such application;

(3) that the protection granted shall not interfere with the disposal of the applications already received from others;

(4) that the asbestos obtained from the blocks granted under prospecting licences and mining leases should, as far as possible, be used only for purposes of local manufacture and not exported in a raw state to places outside Mysore, unless the Govt & other holders of licences or leases for asbestos in the State are given the first ~~option~~ option of purchase of the same, at the current market price and have refused to avail themselves of such option.

I am to add that the three districts other than the one over ~~which~~ which an Exploring licence has been granted to Mr. Krishna Iyer ~~three, the other three~~ should be reserved and no other new applications should be entertained.

Yours etc

DCS
4/10/20
for Chief Secy to Govt

List of enclosures

Copied by

Examined by

Ely 11/10/20